Jamal Bouajjaj

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Professional Experience

Strain Measurement Devices | Wallingford, CT 6/2023 → Present
Electrical Engineering

- Designed hardware and firmware and products for various projects such as a Bluetooth sensor, a non-invasive liquid detector, and a non-invasive flow meter, and a VOC analysis device.
- Designed various internal testing fixtures and test software
- Notable Project: Trace Sensing V1 Device — [04/2024 → 10/2024]
  - Developed firmware for various system components
  - Developed calibration and test fixture for sub-systems and the top-level system
  - Programmed front and back-end clinitian software in Python

Strain Measurement Devices | Wallingford, CT 4/2019 → 6/2023
Electrical Engineering Intern
University of New Haven | West Haven, CT 08/2023 → 12/2023
Adjunct Professor: Intro To Python

Skills

- Circuit and PCB Layout: Altium Designer and KiCad
- Embedded Firmware: AVR, STM32, PIC8, PIC32, and MSP430 MCUs
- Languages: C, Python, VHDL, MATLAB, LaTeX
- Mechanical Modeling: FreeCAD and Solidworks
- Misc Skills: RF Planning, Linux server administration, SPICE simulation, ROS for robotics, Photography
- Equipments Familiarity: Laser Cutters, 3D Printers, Soldering Irons, CNC machine

Education

University of New Haven | West Haven, CT 8/2022 → 5/2023
Master of Science in Electrical Engineering GPA: 3.96

- Notable Courses: System On Chip, DSP2, VLSI Design, Wireless Communication, HDL, Random Processes
- Research project: Wide-band digital pre-distortion [09/2022 → 5/2023]
  - Researching into adaptive filtering methods to be added before a pre-distortion system for a wide-band amplifier
  - Researched into current digital-predistortion techniques, with an example implementation in MATLAB
  - Implemented an LMS algorithm for an amplifier's low pass characteristic in MATLAB

University of New Haven | West Haven, CT 8/2018 → 5/2022
Bachelor of Science in Electrical Engineering GPA: 3.88

- Notable Courses: DSP1, Autonomous Robotics, Intro to IOT, Random Signals, Embedded Systems, Computer Architecture

Other Projects

▶ *See www.electro707.com/projects for a more complete list of projects.*

IV-8 VFD Display Driver | Full-Stack Designer *10/2024 → Present*

- *Designed two boards to driver 2x and 4x IV-8 VFD Displays*

Larged 7-Seg Display Controller | Full-Stack Designer *05/2025 → Present*

- *Designed a custom controler board for large 4in 7-segment displays that includes an ESP32 microcontroller, a POE controller, and an Ethernet controller*

2023 MITRE eCTF Competition | Lead Designer and Attacker *01/2023 → 04/2023*

- *Developed a secure C car-fob firmware implementation*
- *Attacked other team's designs with buffer overflow and weak-RNG attacks*
- *Placed 14th place out of 61 active competitors with 80% team contribution*